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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,157	12/23/2005	Eiju Suzuki	Q92027	6585
23373 7590 06/28/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER TESKIN, FRED M	
			ART UNIT 1713	PAPER NUMBER
			MAIL DATE 06/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/562,157

Applicant(s)

SUZUKI ET AL.

Examiner

Fred M. Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20051223.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

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The preliminary amendment of December 23, 2005 has been entered; claims 1-16 are currently pending and under examination herein.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4429089 (Pedretti *et al*).

Pedretti *et al* disclose the polymerization of 1,3-butadiene at temperatures below 25°C, in the presence of a catalyst system comprising specific species of applicants' components (A), (B) and (C) as defined in claim 8; e.g., Nd(O-n-C<sub>10</sub>H<sub>21</sub>)<sub>3</sub>/TIBA/AlEtCl<sub>2</sub>; Nd(O-n-Bu)<sub>3</sub>/TIBA/AlEtCl<sub>2</sub> and Nd(O-nor-C<sub>4</sub>H<sub>9</sub>)<sub>3</sub>/TIBA/AlBr<sub>3</sub> as per Examples 18, 19, 23, 25, 26, 29, 39 (both examples so numbered) and 40. As the noted neodymium compounds are each an alkoxide of a rare earth metal, each qualifies as a hydrocarbon solvent-soluble compound as per claim 9.

As such, Pedretti *et al* is deemed fully responsive to the limitations of claims 8 and 9.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Pedretti *et al*.

Pedretti *et al*, as noted above, describes a method of producing butadiene-based polymer by polymerizing 1,3-butadiene under the claimed temperature condition and using the requisite catalyst components (A), (B) and (C). Further, in at least the two examples numbered 39 and Example 40, the obtained product is characterized by infrared analysis as having a 1,4-cis content and vinyl bond content not less than 98.0 % and not more than 0.3 %, respectively; viz., 1,4-cis: 98.7% and 1,2: 0.2 % (the "1,2" notation presumably referring to vinyl content). Pedretti *et al* do not state that FT-IR was used to measure the polymer microstructure and do not report an  $M_w/M_n$  ratio for the described products. Nevertheless, since the exemplified products were prepared at the same polymerization temperature and with the same catalyst components as applicants and since the dependence of molecular weight distribution on polymerization conditions and catalyst system is well known in the polymer art, a plausible basis exists for inferring that those products inherently possess the undisclosed molecular weight parameters of applicants' polymer as claimed.

Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness is established. *In re Best*, 195 USPQ 430,

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433 (CCPA 1977). When there is sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not. *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pedretti *et al* as applied to claims 1-7 above, in view of US 6046266 (Sandstrom *et al*).

It would have been obvious to one of ordinary skill in the art to include the butadiene polymer product of Pedretti *et al* in the rubber composition of a tire element, as claimed, since Pedretti *et al* positively teach utility of cis-1,4-polybutadiene in pneumatic tire applications (see col. 3, lines 18-27) and since the benefits of including cis-1,4-polybutadiene rubber in tire tread and sidewall compounds are well-recognized in the prior art as evidenced by Sandstrom *et al* (see, e.g., col. 1, lines 45-50; col. 3, lines 6-8; col. 4, lines 36-42 and col. 16, lines 41-45). The expectation of realizing equivalent performance as tire elements would have provided the requisite motivation for an ordinarily skilled practitioner to utilize such polymer products of Pedretti *et al* as described in Examples 39-40 thereof in creating the rubber composition and tire components of Sandstrom *et al*, and thereby arrive at the invention of instant claims 13-16.

Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5858903 (Sylvester *et al*).

Sylvester *et al* disclose a method of preparing butadiene-based polymer comprising the step of polymerizing 1,3-butadiene in the presence of a catalyst comprising neodymium (branched) carboxylate and Lewis acid, and further combining aluminum trialkyl, dialkyl aluminum hydride and/or aluminoxane as catalytic component (see col. 2, lines 15-52 and Examples 1c) and 2c)). The exemplified embodiments were performed at polymerization temperatures outside the claimed range, e.g., between 20° and 70°C (see Example 2c)); however, Sylvester *et al* clearly express preference (see col. 6, lines 30-33) for carrying out the polymerization at temperatures of 20° to 160°C, which range overlaps the temperature range recited in present claim 8.

In cases involving overlapping ranges, such as the present case, it has consistently been held that even a slight overlap in range establishes a *prima facie* case of obviousness; see, e.g., *In re Woodruff*, 16 USPQ2d 1936 (claimed invention rendered obvious by prior art reference whose disclosed range ("about 1-5% carbon monoxide") abutted the claimed range ("more than 5% to about 25%" carbon monoxide) and *In re Geisler*, 43 USPQ2d at 1365 (acknowledging that claimed invention rendered *prima facie* obvious by prior art reference whose disclosed range (50-100 Angstroms) overlapped the claimed range (100-600 Angstroms)). Accordingly, it would have been obvious to one of ordinary skill in the art to modify Sylvester *et al* through use of a lower polymerization temperature, e.g., 20°C as per claim 8, and reasonably expect to obtain adequate results.

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The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Jang *et al* is cited as pertinent to the synthesis of polybutadiene having a cis-1,4-content in excess of 98.0 % (note Examples 5-10).


No claims are allowable at this time.

Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/06-22-07

  
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C713